The UV Habitable Zone Around the M Star Gl 581

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Nearly the 70% of Milky Way Galaxy are dM stars. Even they are low mass stars, they represent almost the 20% of luminous mass in our galaxy. Due to their faint intrinsic luminosity, only those M stars that are within the solar neighborhood are possible to be observed. The last surveys of exoplanets has reported very few M stars with planetary systems and only one of them: Gl 581 has been observed by IUE satellite. Ultraviolet radiation is known to inhibit photosynthesis, induce DNA destruction and cause damage to a wide variety of proteins and lipids. In particular, UV radiation between 200 and 300 nm becomes energetically very damaging to most of the terrestrial biological systems. On the other hand, UV radiation is usually considered one of the most important energy source on the primitive Earth for the synthesis of many biochemical compounds and, therefore, essential for several biogenesis processes. In this work we apply our model of UV Habitable Zone (Buccino et al., Icarus, 183 (2006) 491-503) to study the UV constraints for the origin and the developmen of life on a hypothetical terrestrial planet around Gl 581. We compared these results with the traditional HZ analyses.